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Klaus M. Irion

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EXAMINER

AGGARWAL, YOGESH K

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/994,178	Applicant(s) IRION ET AL.	
	Examiner YOGESH K. AGGARWAL	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10-19 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) 6,7 and 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,8,13-15,17-19 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner's response:

1. Applicant argues that Pelchy '313 or Tsuji fails to teach the recited features of claims 3 and 25. The Examiner respectfully disagrees. Tsuji clearly teaches in figure 18, two top portions i.e. first section (51b) and second section (51 c) extending in spaced relation one to the other and obliquely or crosswise to said image pick up surface of said image sensor (circuit board sections 51b and 51 c are oblique and crosswise to image sensor 55 as shown in figure 18, col. 11 lines 41-52) and a third section (bottom portion of circuit board opposite image sensor 54) that is substantially V-shaped being arranged between the first and the second sections.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 8, 17, 19, 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji (US Patent # 5,220,198).

[Claim 1 and 8]

Tsuji teaches an image pick-up module (figure 18, image pick up device 54), especially for an endoscope (figure 19), comprising an endoscope shaft having a longitudinal axis an electronic

image sensor (See figure 19 image sensor pick 54 up surface is transverse to the longitudinal axis of the shaft of the endoscope) having an image pick up surface transverse to the longitudinal axis of the shaft; a single-piece circuit board (figure 7, circuit board 51 or 51' in figure 18) which is electrically bonded to said image sensor 54 as shown in figure 18 (col. 11 lines 41-col. 12 line 13), said circuit board (51') having at least three integral sections, with a first section (51b) and a second section (51c) extending in spaced relation one to the other and obliquely or crosswise to said image pick up surface of said image sensor (circuit board sections 51b and 51c are oblique and crosswise to image sensor 55 as shown in figure 18, col. 11 lines 41-52),

Tsuji teaches that flexible circuit board 51' or 51 is bent like a U shaped section at the top part and V-shaped at the bottom by making it tapered from a plane circuit board as shown in figure 7 (col. 8 lines 20-64). Therefore it is noted that a plane flexible circuit board comprising at least first, second and third sections is bent and folded.

said third section (bottom portion of circuit board opposite image sensor 54) that is substantially V-shaped being arranged between the first and the second sections (See figure 18)

at least one cable (bundle 47) electrically bonded to an outside surface of said circuit board (electrical connections between wires 43 and circuit board 51') leading away from said circuit board (col. 12 lines 13-19);

wherein said image sensor (54) is arranged on one end of said circuit board opposite said third section (see figure 18).

[Claim 4]

Tsuji teaches wherein the V-shaped third section have a straight-line prolongation of said first and second sections (figure 18).

[Claim 17]

Tsuji discloses in figure 18 a section on the top to accommodate the imager 54 and having a space to accommodate the image sensor and is read as a recess. The imager is read as an electric component contained in the circuit board.

[Claim 19]

Tsuji would inherently have at least one electric circuit board conductor for electrically connecting first and second section since the whole of the circuit board is integral.

[Claim 21]

Tsuji discloses different sections of a circuit board 51' (51a-51c) with an image pick up element 54 and a bottom third section being arranged between said first and second sections of each blank (figure 18) that are bent in spaced relation to one another. Tsuji also discloses having a first and second section having cable attached and a third section connected to the first and second section which is a cable (bundle 47) electrically bonded to an outside surface of said circuit board (electrical connections between wires 43 and circuit board 51') leading away from said circuit board (col. 12 lines 13-19);

[Claims 22]

This is a method claim corresponding to apparatus claims 1 and 21. Therefore claim 22 is analyzed and rejected based upon apparatus claims 1 and 21 respectively.

[Claim 24]

Tsuji discloses an image pick-up module (figures 18 and 19), especially for an endoscope, an endoscope shaft having a longitudinal axis an electronic image sensor (54) including an image pick up surface transverse to the longitudinal axis of the shaft including an

image pick-up surface (See figure 19 image sensor pick 54 up surface is transverse to the longitudinal axis of the shaft of the endoscope); a circuit board (51') electrically bonded to said image sensor (figure 18), said circuit board comprising first and second sections (51b and 51c), said first and second sections each having a first end bonded to said image sensor and a second end (col. 11 lines 41-52), wherein said first and second sections 51b and 51c extend longitudinally from said image sensor 54 substantially perpendicular to the image pick-up surface of said sensor and substantially parallel to each other (col. 11 lines 41-52 teach a U-shape wherein two sides are substantially parallel to each other, the claim is broad and recites "substantially parallel"); and a third section 51a integrally formed with the second end of said second section (bottom of said circuit board opposite said image sensor is integrally formed with the second end of said image sensor) said third section (bottom portion of circuit board opposite image sensor 54) that is substantially V-shaped being arranged between the first and the second sections (See figure 18)

at least one cable (bundle 47) electrically bonded to an outside surface of said circuit board (electrical connections between wires 43 and circuit board 51') leading away from said circuit board (col. 12 lines 13-19).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 14, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji (US Patent # 5,220,198) in view of Yabe (US Patent # 4,779,130).

[Claim 2]

Tsuji teaches said third section 51a extends crosswise to said first and second sections (See figure 18) but fails to teach in this embodiment wherein said first and second sections are parallel to one another. However Yabe teaches in figure 2 an endoscope wherein first and second sections are parallel to one another and third section opposite image sensor 34 is crosswise to said first and second sections. Therefore taking the combined teachings of Tsuji and Yabe, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have wherein first and second sections are parallel to one another and third section opposite image sensor is crosswise to said first and second sections so that the image sensor, flexible circuit board and electronic components are integrally disposed in a cylindrical support to constitute a unit thereby when a trouble occurs it is easy to replace the whole unit in a short amount of time as taught in Yabe (col. 4 lines 32-48).

[Claims 14, 15 and 18]

Tsuji fails to disclose a forth section opposite said third section and accommodating an electronic component and at least one electric circuit board conductor wherein said third section of said circuit board comprises at least one contact for bonding said cable leading away from said circuit board. However Yabe teaches a forth section of the circuit board (figure 2, 35) under the image sensor 34 (electronic component) and at least one electric circuit board conductor (See the electric connections in figure 2) wherein said third section opposite image sensor 34 of said

circuit board comprises at least one contact for bonding said cable leading away from said circuit board. Therefore taking the combined teachings of Tsuji and Yabe, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have a forth section opposite said third section and accommodating an electronic component and at least one electric circuit board conductor wherein said third section of said circuit board comprises at least one contact for bonding said cable leading away from said circuit board so that the image sensor, flexible circuit board and electronic components are integrally disposed in a cylindrical support to constitute a unit thereby when a trouble occurs it is easy to replace the whole unit in a short amount of time as taught in Yabe (col. 4 lines 32-48).

6. Claims 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji (US Patent # 5,220,198).

[Claim 13]

Tsuji discloses wherein an interior of said circuit board is filled with insulating sealing resin 66 as shown in figure 6 but fails to teach an adhesive that is electrically non-conductive, filling compound like epoxy resin. However Official Notice is taken of the fact that it is very common to have an adhesive that is electrically non-conductive, filling compound like epoxy resin.

Therefore taking the combined teachings of Tsuji and Official Notice, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have an adhesive that is electrically non-conductive, filling compound like epoxy resin in order to have high heat conductivity, which makes the temperature distribution uniform at the time of cure, so that the necessity of stepwise heating is eliminated at the time of cure and the procedure of curing is made easier to practice.

[Claim 23]

See Examiner's notes regarding Claim 13.

Allowable Subject Matter

7. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOGESH K. AGGARWAL whose telephone number is (571)272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571)-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nhan T. Tran/
Primary Examiner, Art Unit 2622

/YA/